IN THE CLAIMS

1. (Currently amended) A semiconductor device having a first vertical type bipolar transistor and a second vertical type bipolar transistor having a breakdown voltage that is higher than a breakdown voltage of the first vertical type bipolar transistor, said first vertical type bipolar transistor and said second vertical type bipolar transistor each having an emitter, a base, and a collector, the semiconductor device comprising:

a P-type substrate ~~of a first conductive type~~;

an N-type epitaxial layer formed on the substrate;

a first embedded diffusion layer formed as a part of the collector of the first vertical type bipolar transistor in a first upper part of the substrate and in the epitaxial layer; and

a second embedded diffusion layer formed as a part of the collector of the second vertical type bipolar transistor directly on the substrate, in a second upper part of the substrate, wherein a top of the second embedded diffusion layer is formed at a distance from a surface of the emitter of the second vertical type bipolar transistor greater than a distance between a top of the first embedded diffusion layer and a surface of the emitter of the first vertical type bipolar transistor, and a bottom of the second embedded diffusion layer is formed at a distance from the surface of the emitter of the second vertical type bipolar transistor greater than a distance between a bottom of the first embedded diffusion layer and the surface of the emitter of the first vertical type bipolar transistor.

2. (Canceled)

3. (Canceled)

4. (Previously presented) A semiconductor device according to claim 1, wherein the impurity concentration of the second embedded diffusion layer includes a first impurity concentration that is equal to and a second impurity concentration that is

greater than the impurity concentration of that portion of the epitaxial layer formed above the second embedded diffusion layer.

5. (Canceled)

6. (Previously presented) A semiconductor device according to claim 1, wherein the substrate is a single substrate, and wherein the impurity concentration of the second embedded diffusion layer is $1x10^{13}$ to $1x10^{15}$.

7-19. (Canceled)

20. (Previously presented) A semiconductor device according to claim 1 further comprising:

a first base layer disposed between two first graft base layers and disposed above the first embedded diffusion layer on the epitaxial layer to define a first epitaxial thickness between a first base layer and the first embedded diffusion layer; and

a second base layer disposed between two second graft base layers and disposed above the second embedded diffusion layer on the epitaxial layer to define a second epitaxial thickness between a second base layer and the second embedded diffusion layer,

wherein the first epitaxial thickness is less than the second epitaxial thickness; and

wherein only the epitaxial layer is disposed between the base layer and the second embedded diffusion layer.

21. (Previously presented) A semiconductor device according to claim 1, wherein an impurity concentration of the second embedded diffusion layer is approximately equal to or higher than the epitaxial impurity concentration at all distances greater than a distance from the surface of the emitter of the second vertical

type bipolar transistor to a peak position of the impurity concentration of the second embedded diffusion layer.

22. (Previously presented) A semiconductor device according to claim 1, wherein a peak position of an impurity concentration of the second embedded diffusion layer resides at a distance from the surface of the emitter of the second vertical type bipolar transistor that is approximately equal to a location of the bottom of the first embedded diffusion layer from the surface of the emitter of the first vertical type bipolar transmitter.

23. (Previously presented) A semiconductor device according to claim 1, wherein the first vertical type bipolar transistor defines a voltage that is different than a voltage of the second vertical type bipolar transistor,

wherein the substrate is a silicon substrate,

wherein the first embedded diffusion layer includes an impurity concentration that is higher than the epitaxial impurity concentration, and

wherein the second embedded diffusion layer defines a conductive type that is the same as the epitaxial conductive type.

24. (Previously presented) A semiconductor device according to claim 1, wherein the second vertical type bipolar transistor includes a base layer disposed between two graft base layers and wherein only the epitaxial layer is disposed between the base layer and the second embedded diffusion layer.

25. (Currently amended) The semiconductor device of claim 1, wherein ~~the substrate is a P-type substrate and wherein~~ the second embedded diffusion layer is an N+-type second embedded diffusion layer.

26-29. (Canceled)

30. (Previously presented) The semiconductor device of claim 1, wherein the first vertical type bipolar transistor is capable of operating at a higher speed than the second vertical type bipolar transistor.

31. (Previously presented) The semiconductor device of claim 1, wherein the second vertical type bipolar transistor is capable of operating at a higher voltage than the first vertical type bipolar transistor.

32. (Currently amended) A semiconductor device having a first vertical type bipolar transistor and a second vertical type bipolar transistor having a breakdown voltage that is higher than a breakdown voltage of the first vertical type bipolar transistor, said first vertical type bipolar transistor and said second vertical type bipolar transistor each having an emitter, a base, and a collector, the semiconductor device comprising:

a P-type substrate ~~of a first conductive type~~;

an N-type epitaxial layer formed on the substrate;

a first embedded diffusion layer formed as a part of the first vertical type bipolar transistor in a first upper part of the substrate and in the epitaxial layer; and

a second embedded diffusion layer formed as a part of the second vertical type bipolar transistor directly on the substrate, in a second upper part of the substrate,

wherein the second embedded diffusion layer includes an impurity concentration that is less than an impurity concentration of the first embedded diffusion layer, and

wherein a top of the second embedded diffusion layer is formed at a distance from a surface of the emitter of the second vertical type bipolar transistor greater than a distance between a top of the first embedded diffusion layer and a surface of the emitter of the first vertical type bipolar transistor, and a bottom of the second embedded diffusion layer is formed at a distance from the surface of the emitter of the second vertical type bipolar transistor greater than a distance between a bottom of the first embedded diffusion layer and the surface of the emitter of the first vertical type bipolar transistor.